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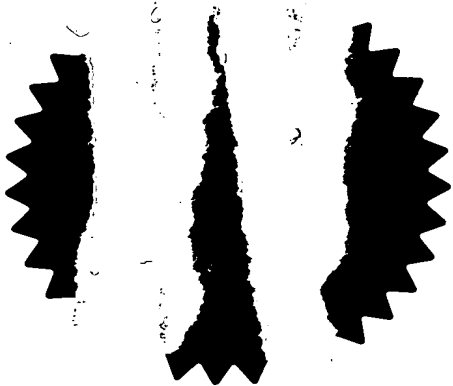
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Dated 11 August 2003



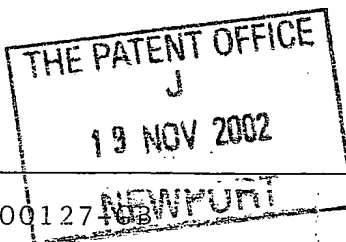
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P01/7700 000-0226895.1

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
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NP10 8QQ



1. Your reference

TC-MP1001274

2. Patent application number

(The Patent Office will fill in this part)

0226895.1

19 NOV 2002

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Aspect Management Limited
Wrenbury Hall
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Patents ADP number (if you know it)

8428724001
GB

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

Coupling Arrangement

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Lloyd Wise, McNeight & Lawrence
Regent House
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Stockport
Cheshire SK4 1BS

Patents ADP number (if you know it)

08458275001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number.

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

Yes

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

COUPLING ARRANGEMENT

5 This invention relates to conservatory roof constructions and is particularly concerned with the interconnection of frame components in angular relationship with one another.

10 Interconnection arrangements for this purpose are already known - see for example GB Patent No. 2323107 (Ultraframe (UK) Limited) and European Patent Application No. 945561 (Rickmans Limited), the disclosures of which provide background information relating to the types of conservatory roof constructions that the present invention is concerned with.

15 The present invention seeks to provide an improved arrangement for interconnection of a jack rafter to a main beam of a roof.

20 According to the present invention there is provided a framework comprising first and second elongate frame members which are coupled together in angular relation relative to one another by a coupling arrangement, the coupling arrangement comprising a plate with an upstanding pivot post, channel means associated with and extending longitudinally of the first frame member for receiving the plate and maintaining it captive against separation from the first member in a direction generally transverse to its elongation, and an arm adapted to be coupled to the pivot post and to the second frame member.

25

The channel means may have an opening from which the pivot post projects in a direction generally transverse to the elongation of the first member.

At least one of the sides bounding the opening of the channel means may be provided with a groove for reception of the plate.

5 The plate may be introduced into the channel means from one end of the first member and then adjusted by sliding it along the channel means to the desired location at which the second frame member is to be coupled to the first.

10 Alternatively, the plate may be so dimensioned that, in one orientation, it can be passed through the opening of the channel means and then turned about the axis of the pivot post to a second orientation in which it bridges the channel means and is trapped against withdrawal through the opening (unless returned to said one orientation). This has the advantage that the pivot post can be immediately located at any desired position without having to insert the plate at one end of the first frame member and then slide it lengthwise along the channel means.

15 The plate may co-operate with the channel means in such a way that, when turned from said one orientation, resistance to turning in the opposite direction is developed. For instance, the co-operation between the channel means and the plate may involve a wedging or binding action or an interference fit. For example, sides of the plate
20 may be shaped or provided with formations so that, as the sides ride over the channel means during rotation from said one orientation to the trapped orientation, such shaping and/or formations engage with the channel means and a wedging, binding or other mechanism is obtained which resists turning of the plate in the reverse direction.

25 The frame members may be extrusions, e.g. of a metal such as aluminium or an alloy thereof or a plastics material.

The first frame member may be a hip frame member of a conservatory roof and the second frame member may be a jack rafter extending between the hip frame member and the eaves beam of the roof.

5 The invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 is a schematic exploded view showing a hip bar, a jack rafter and a coupling arrangement in accordance with the present invention;

10

Figure 2 is a plan view showing the jack rafter assembled to the hip bar;

Figure 3 is a sectional view of the hip bar;

15

Figure 4 is a plan view of the pivot post and plate unit; and

Figure 5 is a side elevation of the pivot post and plate unit.

20 Referring to the drawings, the components 10 and 12 respectively constitute a hip bar and jack rafter forming part of a hipped conservatory roof. The hip bar 10 extends from the ridge (not shown) of the roof to the eaves beam while the jack rafter 12 extends between the hip bar 10 and the eaves beam (not shown). In practice, there may be a jack rafter extending from each side of a hip bar to the eaves beam.

25 Each component 10, 12 is formed as an extrusion and is of inverted T-shape comprising a central stem 14 with laterally projecting arms 16 on each side for use in supporting glazing or roofing sheets between the components. The upper ends of the stems 14 are adapted for use with cappings (not shown) which trap and effect sealing

engagement with the sheets. In the case of the hip bar, the arms 16 include a base 18 and an upwardly directed wall 20 thereby forming a channel 22 on each side of the stem 14, the channel extending lengthwise of the extrusion and having an upwardly directed opening 24.

5

As shown in Figure 2, the jack rafter 12 is connected to the hip bar 10 at an angle, the connection being made by means of a coupling arrangement comprising a pivot post 26 upstanding from a plate 28 and a pivot arm 30 which can swivel about the post 26 and is connected to the central stem 20 of the jack rafter 12 in face to face relation with the stem 20, e.g. by a suitable fastener or fasteners such as bolts 31 and associated nuts.

10

In the illustrated embodiment, the arm 30 is provided with circular holes for reception of the bolts or other fasteners. However, in practice, to allow the pitch of the jack rafter to be adjusted according to requirements, the holes in the arm and also holes in the central stem of the 14 the jack rafter may be elongated and possibly curved so that the jack rafter 12 can be tilted upwardly or downwardly to the appropriate pitch while the bolts are in place and then retained at the desired angle of pitch by operating the fastener(s) to firmly secure the arm to the stem 14. To this end, the elongated holes or slots in the arm may be generally transverse relative to those in the stem 20 of the jack rafter.

15

20

The pivot post 26 is located on the hip bar 10 by the plate 28 which is trapped in the channel 22. In the illustrated embodiment, the plate is of generally rectangular shape with one pair of sides longer than the other, the short dimension being such that the plate 28 can be introduced into the channel 22 through the opening 24. After registering the plate 28 within the channel 22, it can then be turned through about 90 degrees so that its long dimension more than bridges the opening 24 thereby rendering the plate 28 captive to the channel 22. The borders of the channel 22 are extruded with grooves 34 for locating the short sides of the plate 28.

25

When the plate 28 is received in this way within the channel 22, the pivot post 26 projects generally upwardly in a direction generally transverse to the elongation of the hip bar 10. The facilitate turning of the plate 28, its short sides are contoured in the manner shown in Figure 5 so that it can be turned through 90 degrees until the portions 32 are substantially parallel with and proximate to the stem 14 and the wall 20. In this condition, the portions 22 may be sufficiently close to the stem and wall 20 that turning of the plate beyond 90 degrees is prevented.

The arm 30 is formed with a generally cylindrical sleeve 36 at one end for reception of the post 26. Means is provided for preventing lifting of the arm from the post, e.g. the post may be formed with a screw thread and a nut 38 may be provided for engagement with the thread to retain the arm 30 coupled to the post 26. The nut or other means may be used to fix or clamp the arm 30 in a desired angular relation when the appropriate positioning of the jack rafter has been obtained. The sense of the thread on the post may be such that tightening of the nut takes place in the same direction as turning of the plate 28 when moving it to the trapped position.

In order to reduce the relatively insignificant risk of the plate 28 becoming dislodged from the channel 22 as a result of somehow turning back in the reverse direction, it may be formed in such a way that a binding or wedging action is obtained during turning of the plate to the trapped orientation (Figure 1). This may be achieved in various ways, e.g. by curling up the short edges of the plate so as to produce an interference fit within the grooves 34. Additionally or alternatively, the plate may be provided with formations such as teeth which "bite" into the material of the hip bar and resist or prevent turning of the plate in the reverse direction.

In the illustrated embodiment, the plate 28 is dimensioned so that it can be inserted through the openings 24 and then turned to render it captive to the hip bar. In a modification, the plate may be insertable into the grooves 34 from one end of the hip bar and then adjusted to the desired position by sliding.

5

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance, it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features disclosed herein and/or shown in the drawings whether or not particular emphasis

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has been placed on such feature or features.

CLAIMS

1. A framework comprising first and second elongate frame members which are coupled together in angular relation relative to one another by a coupling arrangement,
5 the coupling arrangement comprising a plate with an upstanding pivot post, channel means associated with and extending longitudinally of the first frame member for receiving the plate and maintaining it captive against separation from the first member in a direction generally transverse to its elongation, and an arm adapted to be coupled to the pivot post and to the second frame member.
10
2. A framework as claimed in Claim 1 in which the channel means has an opening from which the pivot post projects in a direction generally transverse to the elongation of the first member.
- 15 3. A framework as claimed in Claim 1 or 2 in which at least one of the sides bounding the opening of the channel means is provided with a groove for reception of the plate.
4. A framework as claimed in any one of Claims 1 to 3 in which the plate is so
20 dimensioned that, in one orientation, it can be passed through the opening of the channel means and then turned about the axis of the pivot post to a second orientation in which it bridges the channel means and is trapped against withdrawal through the opening.
5. A framework as claimed in Claim 4 in which the plate co-operates with the
25 channel means in such a way that, when turned from said one orientation, resistance to turning in the opposite direction is developed.

6. A framework as claimed in any one of Claims 1 to 3 in which the arrangement is such that the plate can be introduced into the channel means from one end of the first member and then adjusted by sliding it along the channel means to a desired location.

5

7. A framework as claimed in any one of the preceding claims in which the first frame member is a hip frame member of a conservatory roof and the second frame member is a jack rafter extending between the hip frame member and the eaves beam of the roof.

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8. A framework as claimed in any one of the preceding claims including means for coupling together the arm and the second frame member in such a way as to allow upward and downward tilting of the second member relative to the first member.

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9. A framework as claimed in Claim 8 in which the coupling means includes elongated slot means in at least one of the arm and the second member and fastening means insertable through the slot means.

10. A framework as claimed in Claim 9 in which said at least one slot means is of curved configuration.

20

11. A framework as claimed in Claim 8, 9 or 10 in which the arm is coupled in face to face relation with a vertically disposed flat wall of the jack rafter.

25

12. A framework substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.

ABSTRACT

COUPLING ARRANGEMENT

5 A framework, e.g. part of a conservatory roof, comprises first and second elongate frame members, e.g. a hip bar and jack rafter, which are coupled together in angular relation relative to one another by a coupling arrangement, the coupling arrangement comprising a plate with an upstanding pivot post, channel means associated with and extending longitudinally of the first frame member for receiving the plate and maintaining it captive against separation from the first member in a direction generally transverse to its elongation, and an arm adapted to be coupled to the pivot post and to the
10 second frame member.

Figure 1

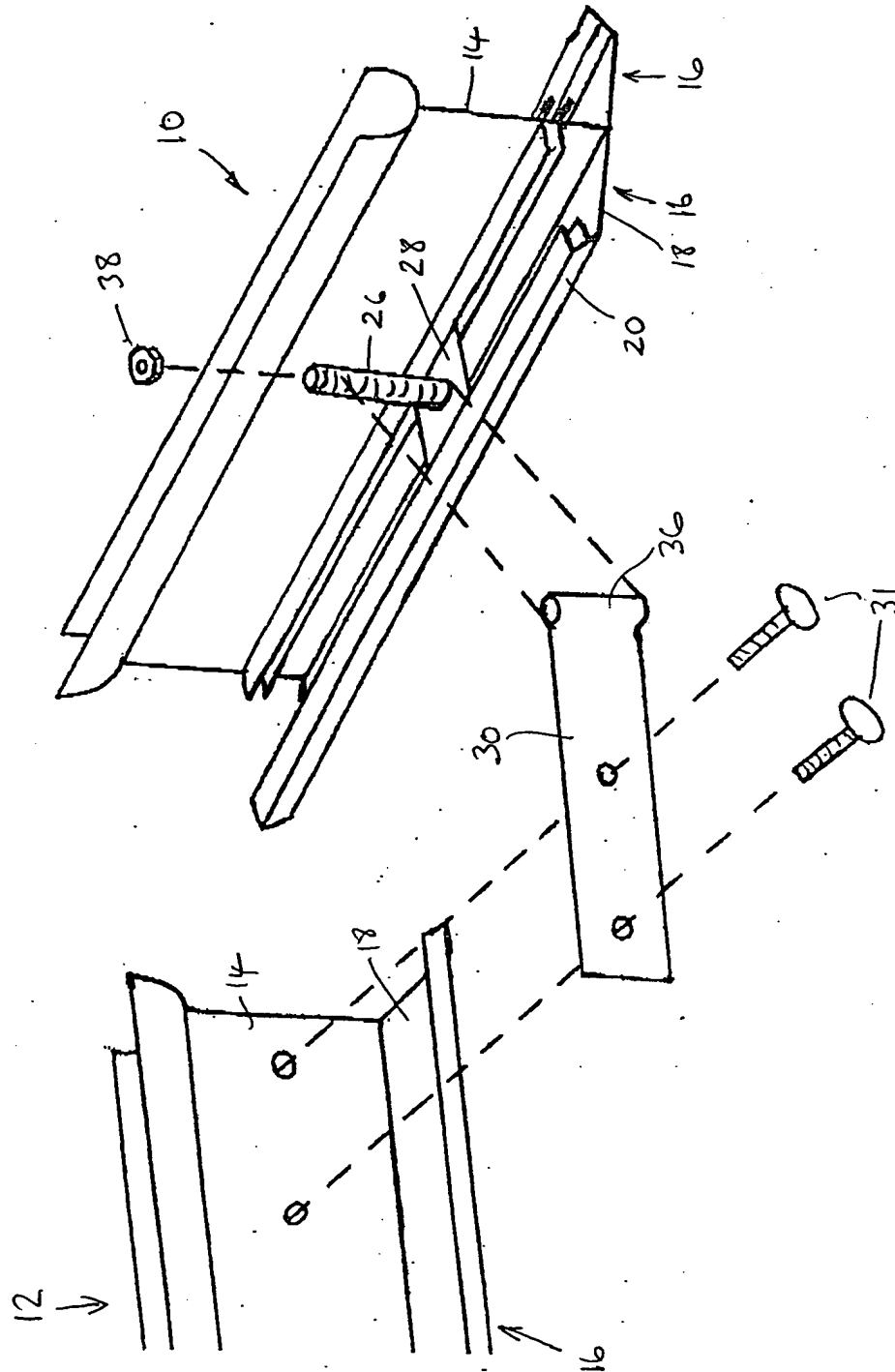


Figure 2

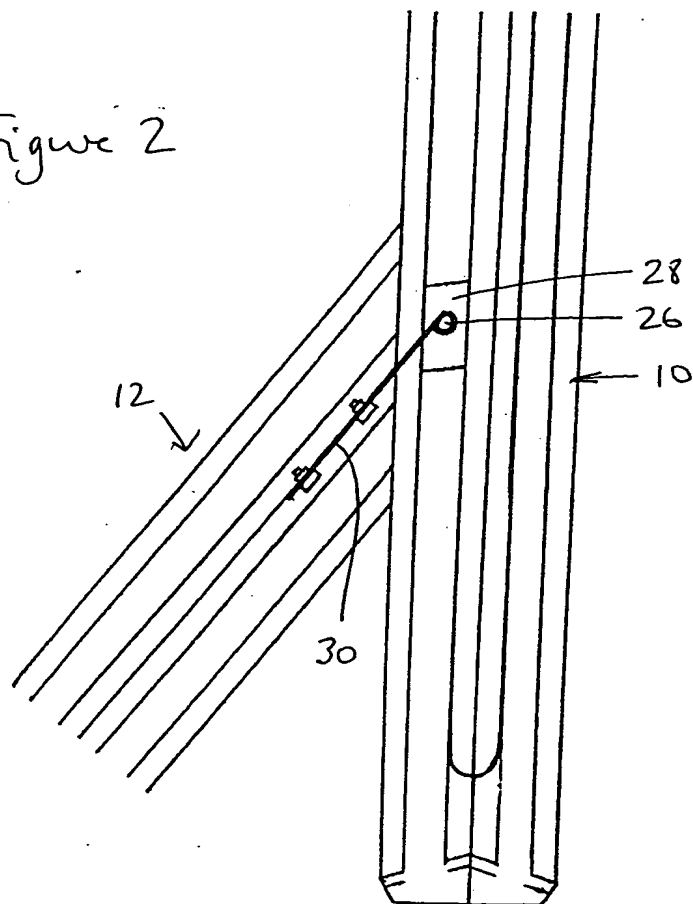


Figure 3

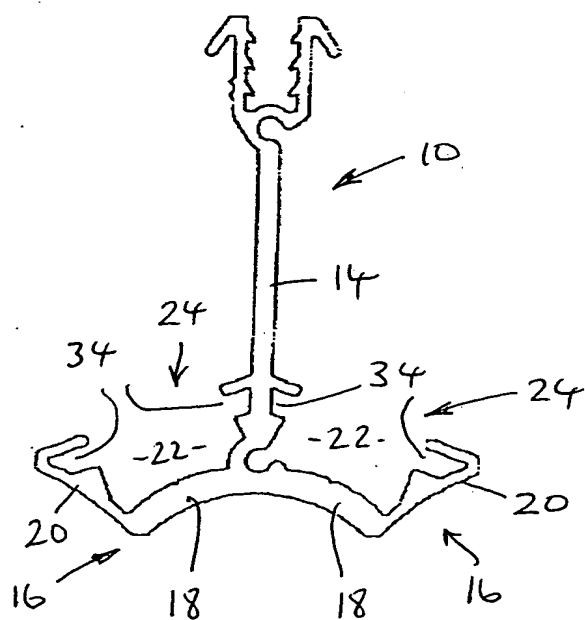


Figure 4

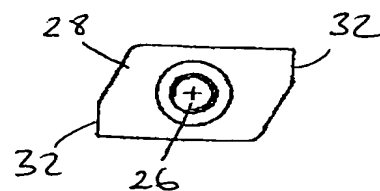


Figure 5

